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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/871,630	06/04/2001	Hideki Sato	35.C15410	3202

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EXAMINER

CHANG, AUDREY Y

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 10/01/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/871,630

Applicant(s)

SATO, HIDEKI

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "7" for the metal mold. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 2-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The phrase "the projection area" recited in claim 2 is indefinite since it is not clear what is considered to be "the projection area". Also this term lacks proper antecedent basis from it based claim.

The phrase "the reduction in the optical performance during the making" recited in claim 3 is vague and indefinite since it is not clear what is this phrase referred to. The diffractive optical element will not have any "optical performance" during the making of such since the element is not formed yet.

Claim Objections

4. Claim 4 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

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Claim 4 recites that the two diffractive optical parts are formed of the different material however such feature has already been recited in its based claim 1.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to the patent issued to Imamura et al (PN. 5,847,877) in view of the patent issued to Harris et al (PN. 5,214,535).

Imamura et al teaches a *diffractive optical element* having a plurality of *grating surface structures* (21 and/or 22), *serve as the first and the second diffractive optical parts*, that are formed at interfaces of different materials, serves as the first and second substrates, having different refractive indices and different dispersions wherein the substrates (11 and 13 Figure 14)) are accumulated with a space (layer 12) there between, (please see Figures 11-15). Although this reference does not teach explicitly that the space layer is an air layer however since Imamura et al teaches explicitly about how the layers materials are related to each other in order to design the diffractive optical element with desired optical properties and since air layer is a well known optical layer material in the art for designing diffractive optical element it would have been obvious to one skilled in the art to choose the space layer to be an air layer.

Since it has been held to be within the general skill of a worker in the art to select a *known-material* on the basis of its *suitability* for the intended used as a matter of obvious design choice. In re Leshin, 125 USPQ 416. It is implicitly true that the grating surface structures are of phase type nature.

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This reference has met all the limitations of the claims with the exception that it fails to teach to include alignment marks formed on each of the first and second diffractive optical parts for alignment purpose. However to use alignment markings formed on the optical elements in order to engage the optical elements in good alignment is rather a well known practice in the art as taught by the teachings of Harris et al. *Harris et al* teaches that the alignment markings may be formed at predetermined locations of the surfaces of the two engaging substrates for a binary diffractive grating lens (14) and for a lens cover (16) such that the corresponding recess of the alignment markings may be engaged and aligned in order to make the grating lens in good alignment with the lens cover, (please see column 4 lines 20-25). It would then have been obvious to one having ordinary skill in the art to apply the teachings of Harris et al to modify the diffractive optical element of Imamura et al to form alignment markings on the plurality of the diffractive optical parts for the benefit of achieving a better alignment.

With regard to claim 2, Imamura et al does not teach explicitly that the diffractive optical parts have gratings formed into concentric circular shape. However such grating design is very standard in the art as demonstrated by the teachings of Harris et al wherein the binary grating lens (14) has a diffraction grating formed into concentric circular shape, (please see Figure 2 of Harris et al). Such modification would therefore have been obvious to one skilled in the art for the benefit of providing a diffractive optical element with desired symmetric diffraction property. With regard to claim 3, the alignment marks as taught by Harris et al have no influence to the optical performance of the binary diffractive optical lenses.

With regard to claim 5 although this reference (Harris et al) does not teach explicitly about the depth of the alignment markings. However such modification is considered to be obvious matter of design choices to one having ordinary skill in the art since as long as the alignment markings are capable of engaging two optical elements to each other to assure the alignment the actual depth has no criticality.

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With regard to claims 6 and 7, it is implicitly true that the diffractive optical element could be utilized in an optical system and apparatus.

With regard to claim 8, Imamura et al teaches the diffractive optical element has laminated diffractive optical parts but it does not teach explicitly the diffractive optical parts are made by using molding process. However molding process, as taught by Harris et al, is a standard process for making diffractive optical element, (please see column 4, lines 60-65). It would then have been obvious to apply the teachings of Harris et al to make the diffractive optical elements of Imamura et al using standard molding process for the benefit of actually making this diffractive optical element. The lamination process is implicitly included for forming the laminated diffractive optical element. Although Harris et al teaches that the alignment markings are formed by lithographical process however both lithographic process and molding process are well known process in the art for making grating or markings on a substrate it would have been obvious matters of design choice to one skilled in the art to choose molding process as alternative process to make the alignment markings.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Harris et al (PN. 5,214,535).

Harris et al teaches a binary diffractive optical lens wherein the lenses are made by using standard molding process, (please see column 4, lines 60-69). Harris et al teaches that a mold with negative of the binary diffractive optics lens pattern is used such that the negative is pressed on a flat soft coating on a hard substrate to form the binary diffractive optical lens. Harris et al teaches that the mold is made of *nickel* which is a *metal*, (please see column 4, lines 66). Harris et al further teaches that alignment markings may be formed on predetermined location of the surface of the binary diffractive optics lenses in order to ensure the alignment. Although this reference teaches that the alignment markings are formed by lithographic process. However it would have been obvious to one skilled in the art to make it by the

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molding process since both molding process and the lithographic process are standard process in the art

for making the markings or gratings on a substrate. Such modification would have been obvious matters

of design choice to one skilled in the art.

Double Patenting

8. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

9. Applicant is advised that should claim 6 be found allowable, claim 7 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). *The specification fails to show what is the patently distinction between an optical system and an optical apparatus.*

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-8 are provisionally rejected under the judicially created doctrine of obviousness-type

double patenting as being unpatentable over claims 1-4 and 8 of copending Application No. 09/401,660.

Although the conflicting claims are not identical, they are not patentably distinct from each other because they both recite a diffractive optical element having laminated first and second diffractive optical gratings and alignment markings for aligning the two optical gratings.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

12. Claims 1-8 are provisionally rejected under the judicially created doctrine of obviousness-type

double patenting as being unpatentable over claims 1-10 of copending Application No. 09/411,632.

Although the conflicting claims are not identical, they are not patentably distinct from each other because they both recite a diffractive optical element having laminated first and second diffractive optical gratings and alignment markings for aligning the two optical gratings.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

13. Any inquiry concerning this communication or earlier communications from the examiner should

be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on 703-308-1637. The fax phone numbers for the organization where

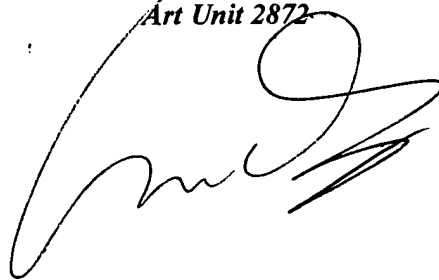
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this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Audrey Y. Chang
Primary Examiner
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A. Chang, Ph.D.
September 24, 2002

A handwritten signature in black ink, appearing to be 'Audrey Y. Chang', written over the typed name and title.